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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,838	06/27/2006	Kristof Van Reck	NL040058	1200

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EXAMINER	
KURR, JASON RICHARD	
ART UNIT	PAPER NUMBER
2614	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/596,838	VAN RECK, KRISTOF	
	Examiner	Art Unit	
	JASON R. KURR	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-12, 23 and 27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Based on Supreme Court precedent and recent Federal Circuit decisions, the Office's stance is that a process must (1) be tied to another statutory class (such as a machine) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. If neither of these requirements is met by the claim, the method is not a patent eligible process under U.S.C. 101 and should be rejected as being directed to non-statutory subject matter.

An example of a method claim that would not qualify as a statutory process would be a claim that recited purely mental steps, such as claim 1. Thus, to qualify as a 101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

Claim 27 is also rejected under U.S.C. 101 as being directed to non-statutory subject matter. The claim discloses a “computer program product”, wherein the

specification discloses that the computer program product may be realized as data on a carrier such as e.g. data traveling over a network connection -- wired or wireless, or program code on paper. Such disclosure of the computer program product does not fall within the statutory classes of invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-19, and 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Aarts et al (US 6,111,960).

With respect to claim 13, Aarts discloses a device for enhancing an audio signal, the device comprising: filter means (fig.5 #20) for filtering the audio signal so as to select a frequency range (col.4 ln.60-62), dividing means (fig.5 #240) for dividing the audio signal of the selected frequency range into time segments (col.7 ln.15-19), and scaling means (fig.5 #241) for scaling the audio signal in each time segment so as to increase the sound level of the audio signal in said frequency range (col.6 ln.63-67,col.7 ln.1-24), wherein the time segments are defined by zero crossings of the filtered audio signal.

With respect to claim 14, Aarts discloses the device according to claim 13, wherein the dividing means are arranged for defining each time segment by two consecutive zero crossings of the filtered audio signal (col.7 ln.17-19).

With respect to claim 15, Aarts discloses the device according to claim 13, wherein the scaling means are arranged for using a distinct scaling factor for each time segment (col.7 ln.13-15).

With respect to claim 16, Aarts discloses the device according to claim 13, wherein the scaling means are arranged for using a scaling factor which is constant for each time segment (col.7 ln.3-6).

With respect to claim 17, Aarts discloses the device according to claim 13, wherein the scaling means are arranged for using a scaling factor which varies with the amplitude of the audio signal (col.7 ln.21-24).

With respect to claim 18, Aarts discloses the device according to claim 17, wherein the scaling means use a non-linear scaling factor, preferably involving a quadratic or cubic function (col.1 ln.40-43).

With respect to claim 19, Aarts discloses the device according to claim 13, further comprising: combining means (fig.5 #26) for combining the scaled audio signal of the selected frequency range and the remained of the audio signal of the previously not selected frequency range.

With respect to claim 25, Aarts discloses an audio amplifier (fig.7) comprising a device according to claim 13.

With respect to claim 26, Aarts discloses an audio system (fig.5) comprising a device according to claim 13.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aarts et al (US 6,111,960) in view of Roberts (US 5,509,080).

With respect to claim 20, Aarts discloses the device according to claim 19, however does not disclose expressly further comprising: comparing means for comparing the amplitude of the combined audio signal with a threshold value, and adjusting means for adjusting the amplitude of the audio signal if the threshold is exceeded. Roberts discloses a comparison means (fig.1 #62,64) for comparing a signal to a selected voltage level (col.2 ln.49-57), and adjusting means (fig.1 #32) for adjusting the low frequency portion of the signal in the event that the signal exceeds the selected voltage level (col.2 ln.59-67, col.3 ln.1-7). At the time of the invention it would have

been obvious to a person of ordinary skill in the art to use the circuit of Roberts on the output of the combiner of Aarts. The motivation for doing so would have been to protect an attached subwoofer from damaging signal levels while maintaining full fidelity in the bass signal range.

With respect to claim 21, Aarts discloses the device according to claim 20, wherein the adjusting means are arranged for adjusting only the amplitude of the audio signal of the selected frequency range (Roberts: col.2 ln.64-67).

With respect to claim 22, Aarts discloses the device according to claim 20, wherein the comparing means and the adjusting means are arranged for comparing the amplitude of the combined audio signal per time segment and adjusting the amplitude of the audio signal per time segment, respectively. It is understood that the low frequency harmonics created by Aarts occur within the time period of the zero-crossing of the audio signal, thus the low frequency portion of the signal that is forwarded to the circuit of Roberts maintains this time period relationship.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aarts et al (US 6,111,960).

With respect to claim 24, Aarts discloses the method according to claim 13, however does not disclose expressly comprising the further step of delaying any the signal components of other frequency ranges. Official Notice is taken that it is well known in the art to delay signals along parallel paths to compensate for processing

delays of signals of an opposing path. At the time of the invention it would have been obvious to a person of ordinary skill in the art to delay the unfiltered signal of Aarts to match the phase of the low frequency signal of the concurrent signal path. The motivation for doing so would have been match the output signals of the combiner such that the low frequency portions of the signal are consistent with the original input signal.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Coats et al (US 7,242,779 B2) discloses a method and apparatus for sub-harmonic generation.

Klayman (US 6,285,767 B1) discloses a low-frequency audio enhancement.

Werrbach (US 5,359,665) discloses an audio bass frequency enhancement.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON R. KURR whose telephone number is (571)272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ping Lee/
Primary Examiner, Art Unit 2614

/Jason R Kurr/
Examiner, Art Unit 2614